A person is holding a blue mobile phone in their hand, positioned in the foreground. The background is a bright, out-of-focus bokeh of yellow and white light spots. The text is overlaid on the left side of the image.

# uC53281-EVM HOW TO: DEMO USING BREKEKE SIPserver<sup>®</sup>

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**PRELIMINARY DOCUMENT**

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➤ *empower embedded.*

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**CHANGE LOG**

CHANGE LOG		
October 23, 2007	Created	Preliminary
November 5, 2007	Added Zoiper PC application	Preliminary

- **THIS DOCUMENT IS PRE-RELEASE AND UNDER NDA**

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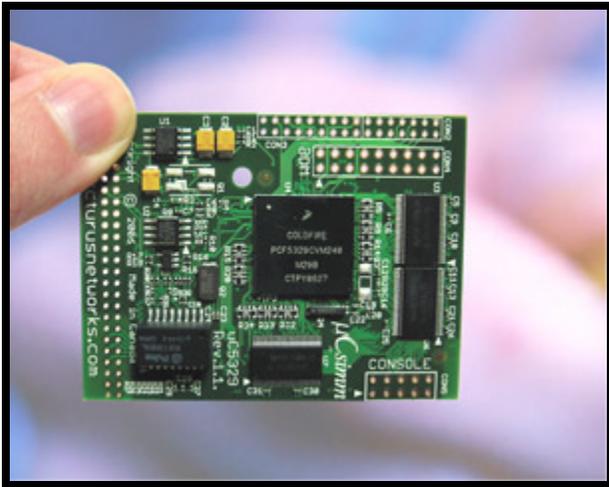


Figure 1 – uC53281 Embedded Voice Module (EVM)

## INTRODUCTION

After you have followed the steps in the [Getting Started Guide](#) to unpack and set up your UC53281EVM you may choose to install a SIP server on your PC. This will allow you to create a demo to call between two or more UC53281 devices or any number of SIP clients and a UC53281 device.

There are a number of compatible SIP servers available on the market ranging from simple SIP registrar and proxies to complex PBX like systems. This document explains how-to obtain, install and configure a simple, multiplatform SIP server produced by a company called Brekeke. Advanced users and customers may opt to use other SIP server products like Asterisk® or the Brekeke PBX.

This demo is particularly useful for on-site demo's, lab environments or other closed network applications where DHCP server or Internet access may not be available. Follow the steps below to obtain an evaluation version of the Brekeke SIPserver®, install and configure the device and run a demo.

This How-To is divided up into the following parts:

- Part – 1 Obtaining (and Installing) the SIPserver
- Part – 2 Configuring the 53281 Device(s)
- Part – 3 Setting up and Running a Demo
- Part – 4 Using a PC Softphone with the Demo

[http://www.brekeke.com/products/products\\_sip\\_quickstart.php#SettingupWindowsMessenger](http://www.brekeke.com/products/products_sip_quickstart.php#SettingupWindowsMessenger)

PLEASE NOTE THAT THE BREKEKE SIPSERVER IS A SIMPLE PROXY SERVER FOR EVALUATION PURPOSES ONLY.

# PART – 1 OBTAINING THE SIPSERVER

## Step – 1 Getting the Brekeke SIPserver

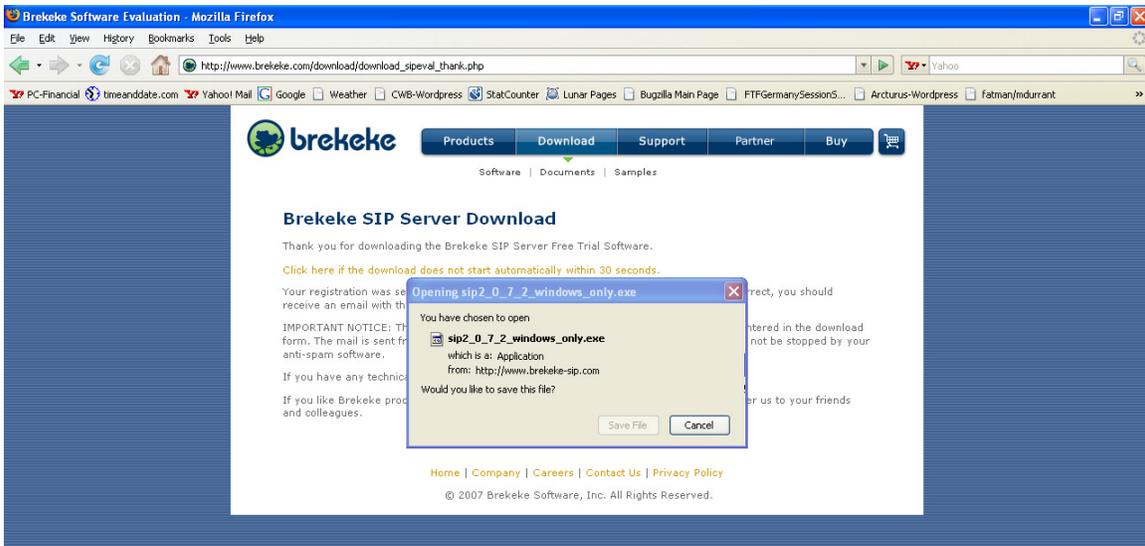
Go to the URL below and click on **DOWNLOAD FREE TRIAL**. Follow the instructions to select the correct system version and license option that you require. The server is available for MAC<sup>®</sup>, Linux<sup>®</sup> and windows<sup>®</sup>

[http://www.brekeke.com/products/products\\_sip\\_2.php](http://www.brekeke.com/products/products_sip_2.php)

The screenshot shows the Brekeke SIP Server website. The browser title is "Brekeke SIP Server 2.0 - Mozilla Firefox". The address bar shows the URL "http://www.brekeke.com/products/products\_sip\_2.php". The page content includes the Brekeke logo, navigation tabs (Products, Download, Support, Partner, Buy), and a main heading "brekeke SIP Server". Below the heading, there is a "2006 Communications SOLUTIONS Product Of The Year" award badge. The text describes the server's functionality: "Brekeke SIP Server registers and authenticates users, and routes calls between user agents. The product has original NAT traversal functionality as well as flexible control routing functions. Supported operating systems include Microsoft Windows XP/2000, Solaris 10, and Mac OS X. Free for Personal and Academic Institution use." There are two buttons: "Buy Now" and "Download Free Trial". A sidebar on the right contains a "Download" section with links for SIP Server 2.0, PBX 2.0, SIP Server 2.1 - BETA, PBX 2.1 - BETA, Brekeke JTAPI SDK, SIP Server Quick Start, and PBX Quick Start. Other sidebar sections include "Support", "Toolbox", and "Announcements". A "2006 Communications SOLUTIONS Product Of The Year" award badge is also visible at the bottom right of the page.

## Step – 2 Installing the Server

Install the server by following the instructions provided for your platform.



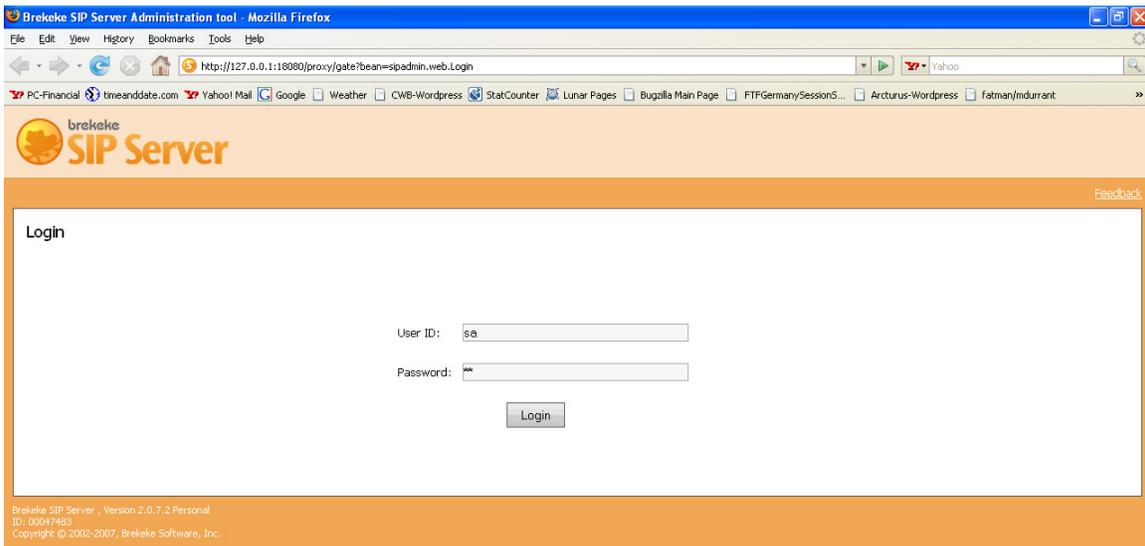
### Step – 3 Running the Server

Start the server by clicking on the SIPserver admin tool icon on your desktop.

The default login and passwords the

User ID: sa

password: sa



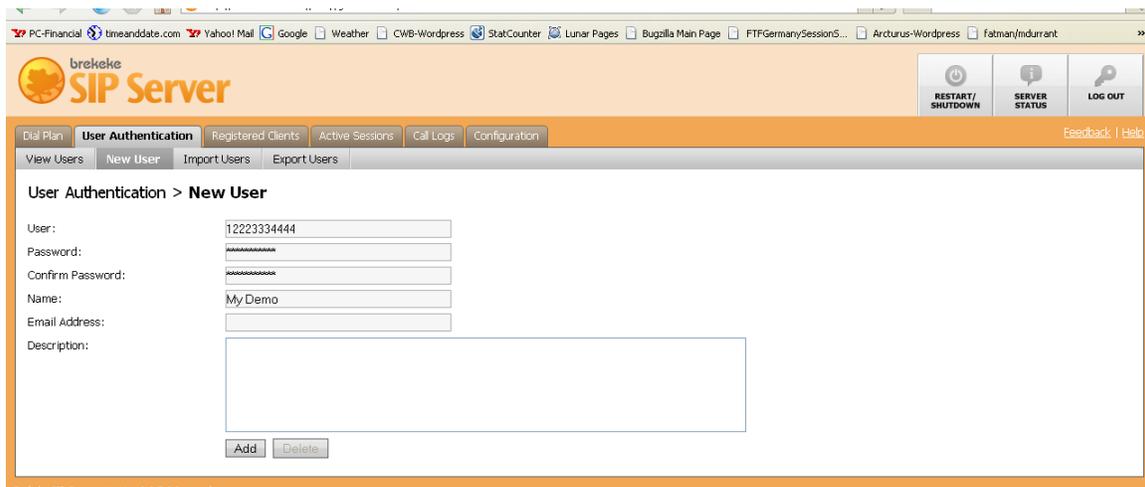
## Step – 4 Creating an Account

Select the **USER AUTHENTICATION** tab and click on **NEW USER**.

Enter the User (UID) and Password (Authenticated Password) information of the account you wish to create.

**NOTE:** It is recommended that you set up an account that conforms to the default digit map in the UC53281 device. Use the standard North American number plan format 1-nnn-xxx-xxxx.

This will enable you to demo functions like call blocking.



The screenshot shows the Brekeke SIP Server web interface. The 'User Authentication' tab is selected, and the 'New User' sub-tab is active. The form contains the following fields:

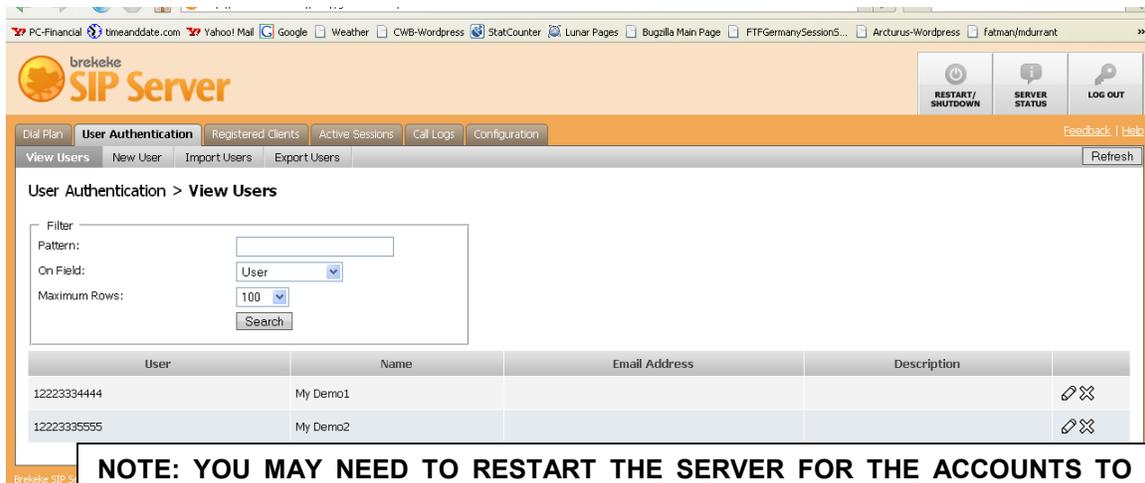
- User: 12223334444
- Password: [Redacted]
- Confirm Password: [Redacted]
- Name: My Demo
- Email Address: [Redacted]
- Description: [Empty text area]

Buttons for 'Add' and 'Delete' are visible at the bottom of the form.

Repeat the step above to create multiple accounts.

## Step – 5 Confirming the Account

Use the **VIEW USERS** to confirm the accounts have been created



The screenshot shows the Brekeke SIP Server web interface with the 'View Users' sub-tab active. A filter section is visible above a table of users.

Filter section:

- Pattern: [Empty text box]
- On Field: User
- Maximum Rows: 100
- Search: [Search button]

User	Name	Email Address	Description	
12223334444	My Demo1			[Edit] [Delete]
12223335555	My Demo2			[Edit] [Delete]

**NOTE: YOU MAY NEED TO RESTART THE SERVER FOR THE ACCOUNTS TO BECOME ACTIVE**

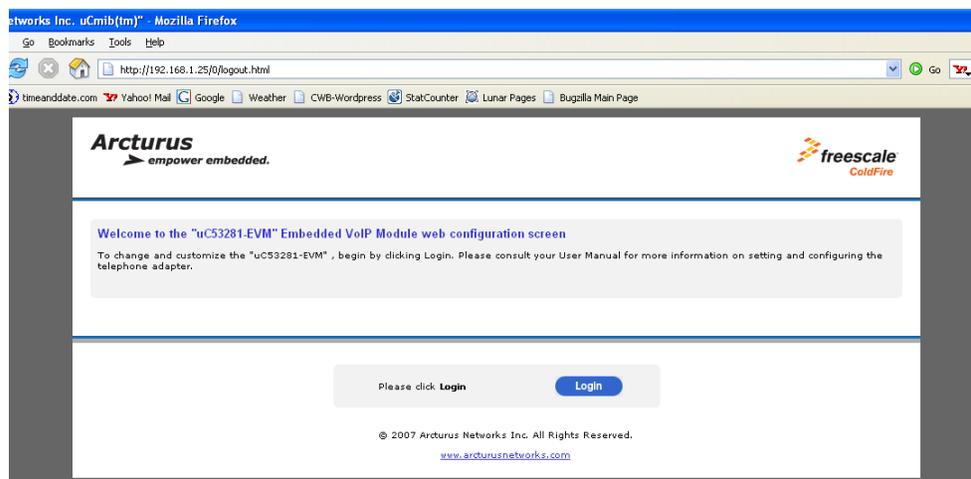
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# PART –2 CONFIGURING THE UC53281

## Step – 1 Logging in to the UC53281EVM

Log into the uC53281EVM web based configuration tool by entering the IP address in the URL line of your web browser. To find out the IP address of the device. Press GPIO button 3 and the voice response system will read the IP address.

- Login: **admin**
- Password: **admin**



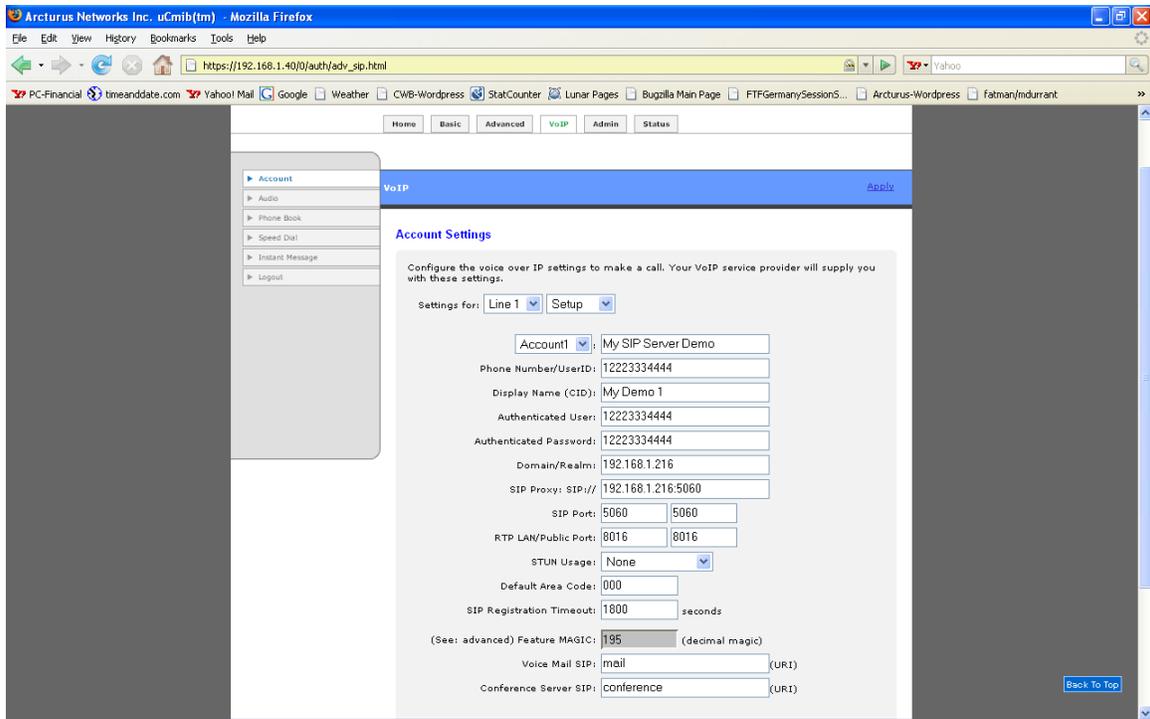
## Step – 2 Setting up The VoIP Account on the UC53281EVM

Choose the VoIP tab page and using Account-1 enter the account settings as you have created them on the SIPserver.

For the **DOMAIN/REALM** setting use the IP address of the PC machine with the SIPserver installed

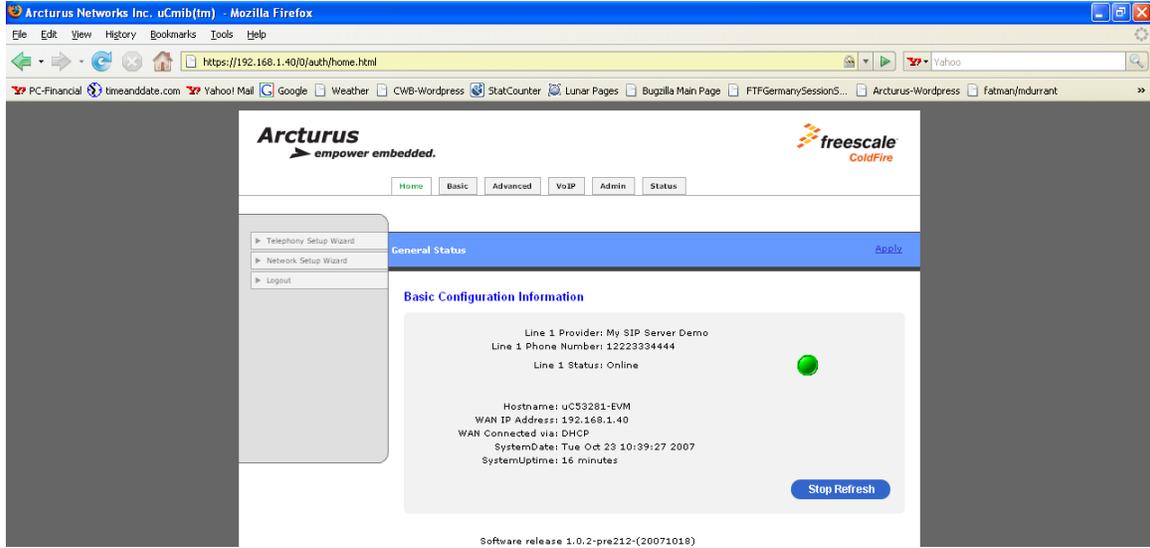
For the **SIP PROXY: SIP://** setting use the IP address of the PC machine with SIPserver installed followed by the port :5060

**Apply the settings and repeat the same steps to configure any additional devices, using unique accounts created on the SIP server.**



### Step – 3 Confirming Registration

If the account is configured properly and the network is working the home page of the UC53281 should display a green dot – meaning that the account is working and ready to use.



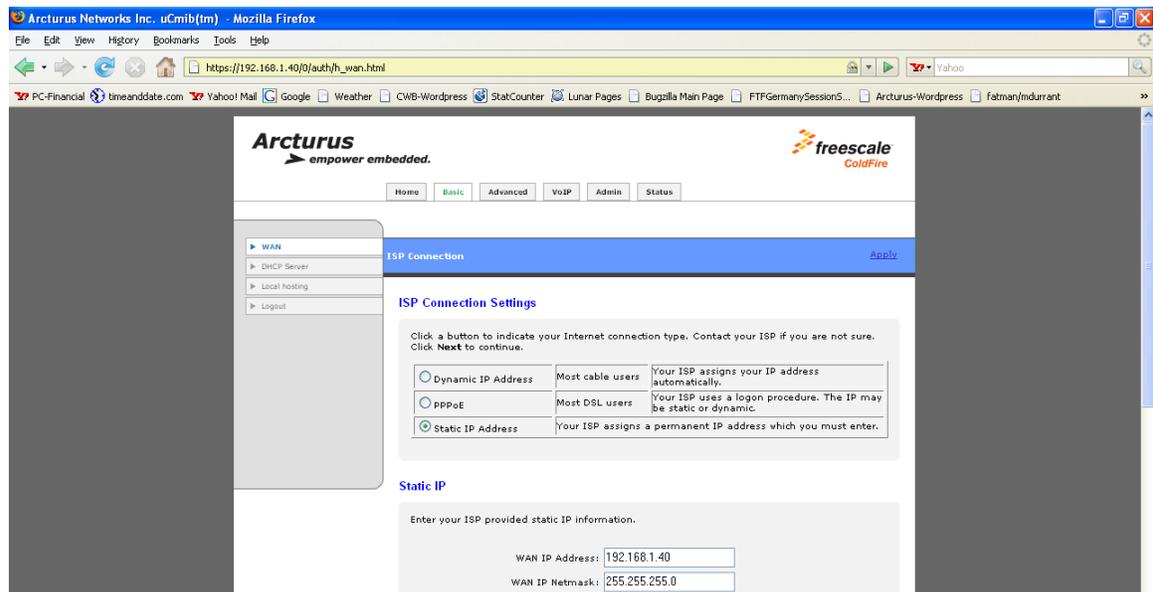
## Step – 4 Creating A Portable Demo Using Static Network Settings

If you are taking the demo to another location or want to run the demo as a closed network, you will want to configure both your PC machine and the UC53281 devices to have static IP addresses OR use the built in DHCP server on one of the UC53281 devices.

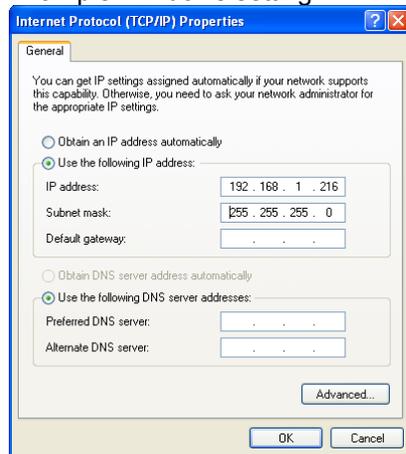
To configure the UC53281 to have a static IP address, select the **BASIC** tab page and click the radio button beside the **STATIC IP ADDRESS** setting. Enter the static IP address you wish to use and click apply.

**NOTE:** By applying a change to the IP address of the device, the web configuration page location may also change. You may need to log back into the device at the new IP address you have assigned

**NOTE:** When statically configuring the network settings, ensure that all devices have been configured to use the same network and subnet.



Example Windows setting:



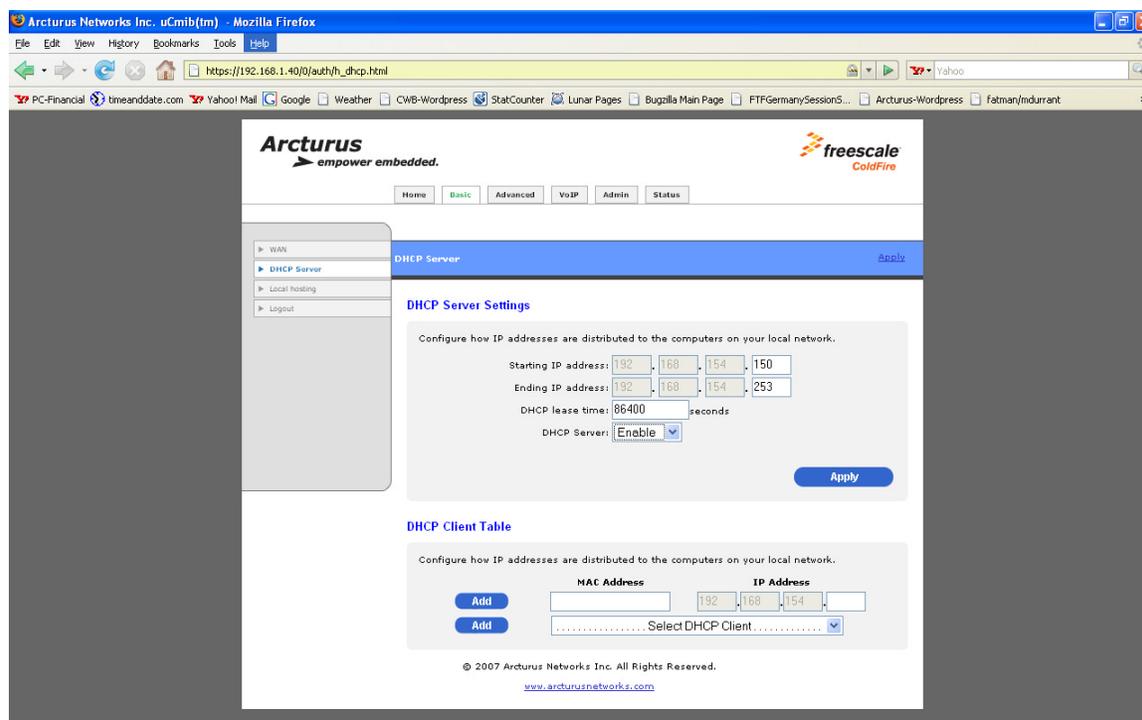
## Step – 5 Creating A Portable Demo Using DHCP (optional)

You may choose to use one of the UC53281 devices as a DHCP server to automatically configuring the network settings on your PC machine and any other DHCP client devices.

It is important to follow the previous step and assign a static IP address to the UC53281 device you are going to use as the DHCP server. Once you have completed this step you can enable the DHCP server by clicking on **DHCP SERVER** on the left column button bar and selecting the

**NOTE:** Make sure all devices are on the same network and subnet.

**NOTE:** It is recommended that you assign devices to the DHCP CLIENT to reserve IP addresses by MAC Address.



**NOTE:** You can reset your network settings back to DHCP client by holding GPIO button-1 for 4 seconds after pressing reset. This will disable DHCP server and enable DHCP client, as well as resetting the login and password to admin/admin.

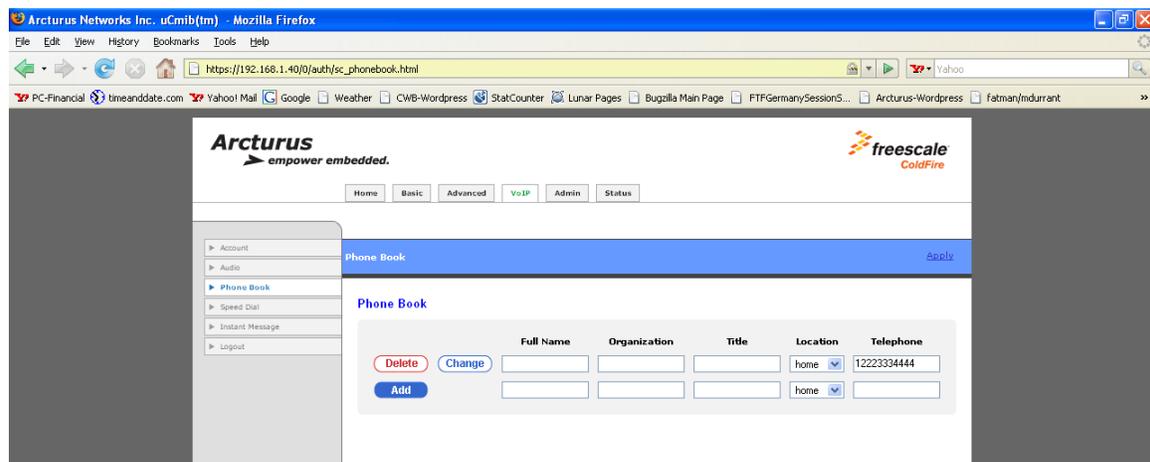
## PART – 3 SETTING UP THE DEMO

Follow the steps in the previous sections and ensure you have:

1. Created a minimum of two accounts on the SIP server
2. Configured two or more UC53281 devices each with a unique account
3. Confirmed that the device are REGISTERED with a green dot on the home page of the webUI

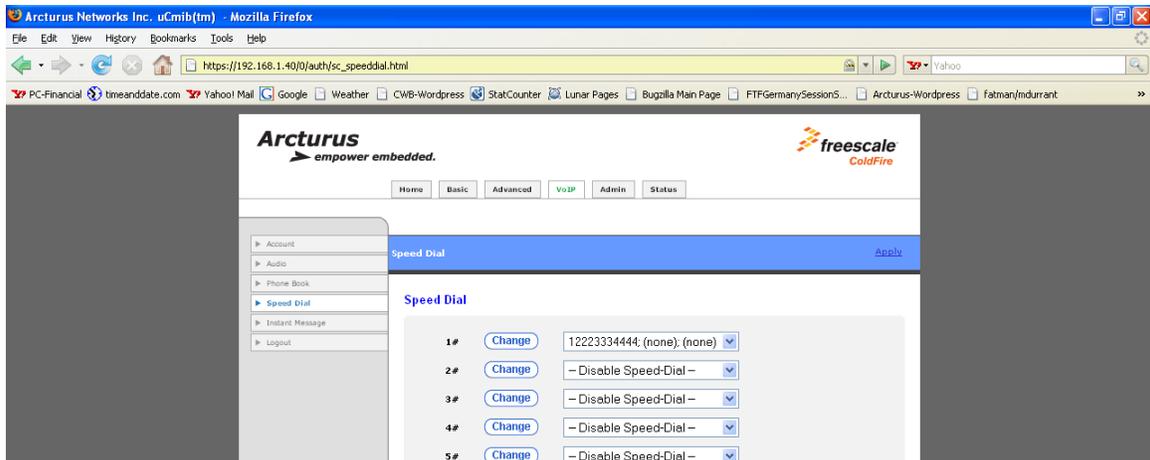
Log into the uC53281 devices and configure the phone book and speed dial settings by following the instructions below.

### Step – 1 Entering Number in the Phone Book



### Step – 2 Confirming The Speed Dial

Select the **SPEED DIAL** from the **VOIP** page and confirm that the phone book setting is set to Speed Dial 1 or 2. The first two speed dials are automatically assigned to GPIO 1 and 2 buttons on the host board.



### Step – 3 Testing The Demo

To test the demo, press the GPI/O button on the EVM host board (either 1 or 2 ) that corresponds to the speed dial you wish to call. Press the GPI/O button again to hang up the call.

## PART – 4 USING A PC SOFTPHONE

It is possible to use a softphone installed on your PC to make and receive calls between your PC and the uC53281 device(s). It is assumed your PC supports audio.

Follow the steps in the previous sections and ensure you:

1. Created a minimum of two accounts on the SIP server
2. Configure at least one UC53281 device with a unique account
3. Confirmed that the UC53281 is REGISTERED with a green dot on the home page of the webUI

### Step – 1 Getting the PC Softphone

Using the link below, download and install the PC softphone according to the instructions provided. The Zoiper softphone is available for MAC, WIN and LINUX and has been tested for compatibility with the SIP server under a WINXP environment.

<http://www.zoiper.com/free.php>



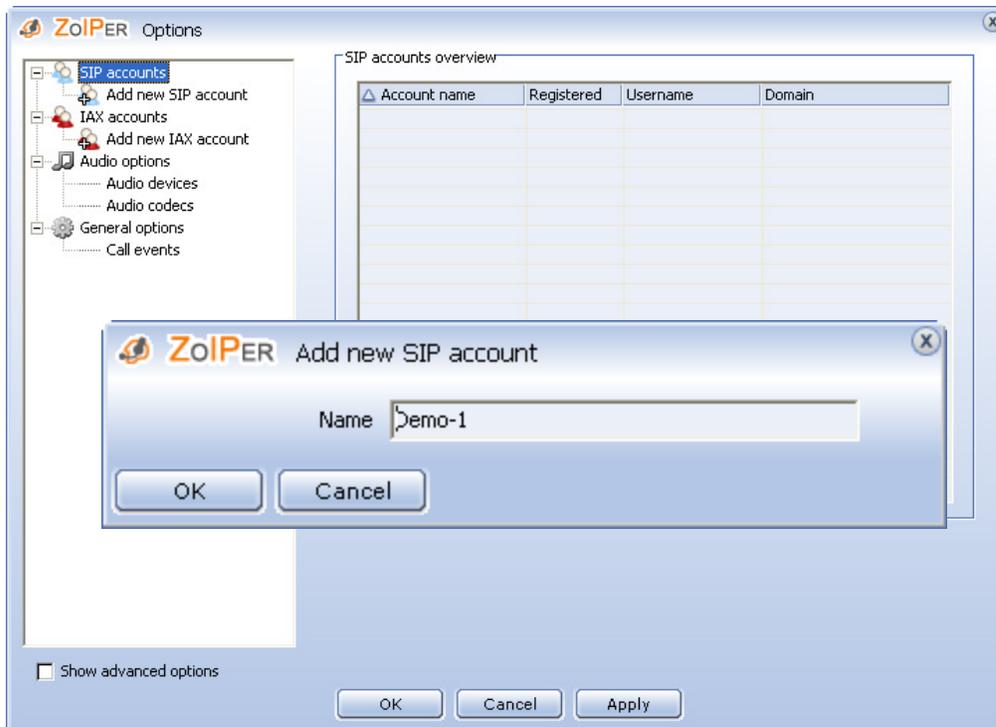
## Step – 2 Running the Softphone Application

After installing the application on your PC run Zoiper and select the OPTIONS pop up window by clicking on the WRENCH icon located to the far right of the Zoiper tool bar.



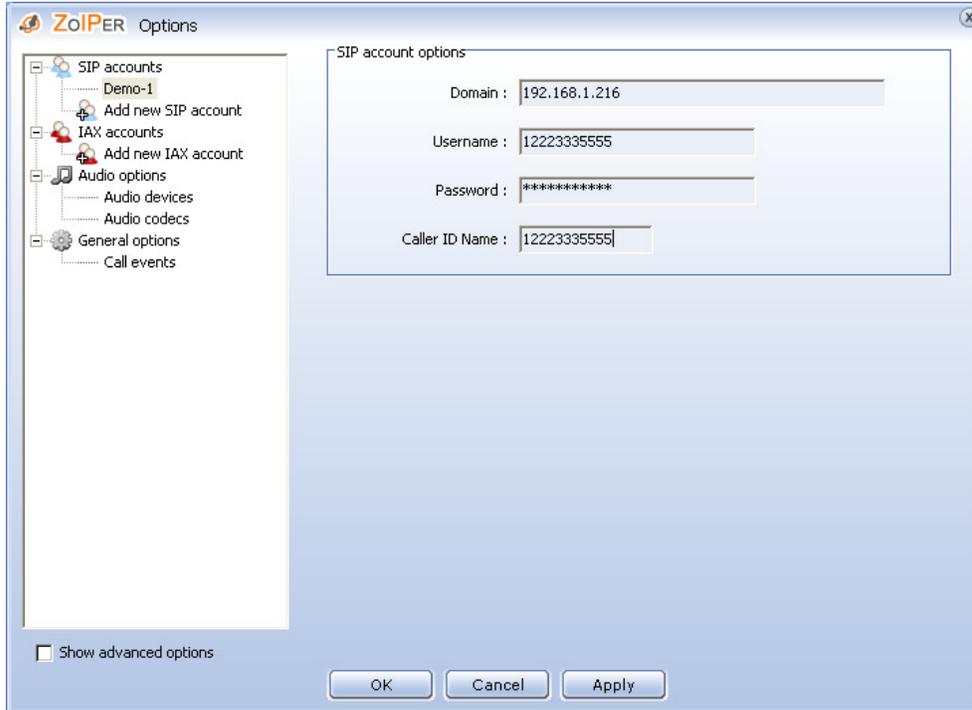
## Step – 3 Creating an Account

Using the pop up window select ADD NEW SIP ACCOUNT from the left column. Enter the name you wish to call the account in the ADD NEW ACCOUNT window. Click OK to continue.



## Step – 4 Setting up the Account

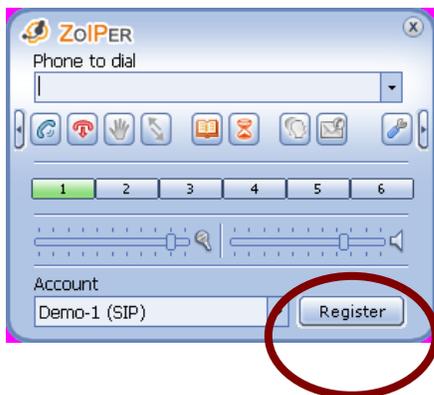
Configure the account settings in the same way you configure the settings on the UC53281 device, using a unique account for each instance. Click OK to continue



## Step – 5 Confirming the Account

If the account does not immediately become active click on the REGISTER button to confirm registration with the server.

Confirm that the account has registered

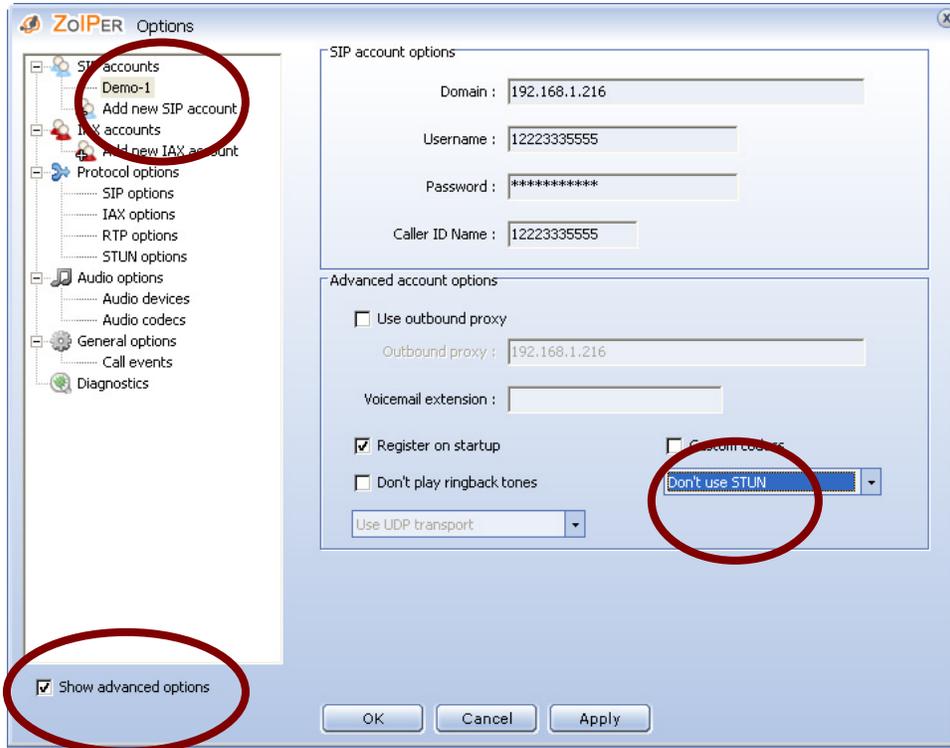


## Step – 6 Advanced Options

It is recommended that the following settings be configured under the ad

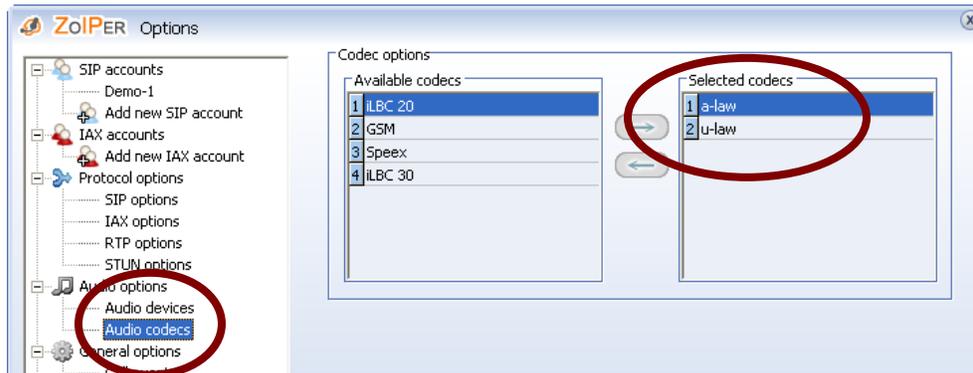
### 1. Disable STUN

STUN is used for NAT firewall traversal and is not required for this demo. Using STUN may cause poor quality or one-way audio. To disable STUN click on the OPTIONS wrench icon and select the SIP account you wish to modify, then select the SHOW ADVANCED OPTIONS check box. From the drop down box select DON'T USE STUN. Click OK to continue



### 2. Select Audio Codec

For best quality audio and to ensure interoperability select the G.711 audio codecs. Click OK to continue.



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**Step – 7 Running the Demo**

You can now place or receive calls between your PC machine and the UC53281 by entering the UC53281 account number into your Zoiper window or by setting up a speed dial in the WebUI of the UC53281.



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